

REMARKS

This paper is in response to the final official action of May 3, 2006, wherein all claims 1-14 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter not adequately described in the specification, claims 1 and 5 were rejected as anticipated by Wu, and the remaining claims 2-4 and 6-14 were rejected as obvious over various combinations of references taken with Wu.

By the foregoing, claims 1 and 6 have been amended to address the 35 U.S.C. § 112, first paragraph rejection, and claim 8 has been amended to correct an obvious transcriptional error.

Reconsideration of the application as amended is solicited.

CLAIM REJECTIONS

Claim Rejections-35 U.S.C. §112

Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

In response, the applicant has amended independent claims 1 and 6 to more clearly describe the invention, without adding new matter. Reconsideration is requested in view of the amendments.

Claim Rejections-35 U.S.C. §102

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Wu (2002/0115270).

Amended claim 1 recites a method of forming a device isolation film in a semiconductor device, comprising the steps of: forming an active region on which ions are

implanted for controlling a threshold voltage on a surface of a semiconductor substrate; forming a trench having a side wall to define a device isolation region by etching a portion of the semiconductor substrate of a device isolation region; forming a side wall oxidation film at the side wall of the trench by performing an oxidation process; performing an ion implantation process on the active region to compensate for the ions for controlling a threshold voltage, which are diffused from the active region; and forming a device isolation film by burying the oxidation film inside the trench.

Wu does not teach or suggest the step of performing an ion implantation process on the active region to compensate for the ions for controlling a threshold voltage, which are diffused from the active region.

Referring to Wu, a field-encroachment implant is performed into the trench surface regions to form the implanted regions 102b and the surface regions under the extended buffer spacers 104a to form the implanted regions 102c, as shown in FIG. 3D. Wherein the extended buffer spacers 104a are formed in the isolation regions and are acted as the buffer layers for performing the field-encroachment implant without affecting the active area (col 2, paragraph 0016). Therefore, the field-encroachment implant is performed into the trench surface regions in the isolation regions without affecting the active area by the extended buffer spacers.

In contrast, the ion implantation process is performed on the active region A (paragraph 0025) in the invention.

Also, the field-encroachment implant in Wu is performed to stop diffusing ions at source/drain region in the active area through the isolation region.

However, the ion implantation process is performed to compensate for the first ions for controlling a threshold voltage, which are diffused, so that the ion concentration distribution of the active region on which ions for controlling a threshold voltage are implanted constant (paragraph 0026).

Accordingly, the present invention is clearly different from what is disclosed in Wu. Therefore, claims 1-14 are clearly allowable over Wu.

Claim Rejections-35 U.S.C. §103

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) taken with Oda et al. (2002/0086498).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) taken with Hong (6,030,882).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) taken with Oda et al. (2002/0086498).

It is submitted that Oda et al. and Hong do not supply the deficiencies of Wu noted above. Therefore, claims 2-4 are in condition for allowance.

Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) taken with Sung (5,550,078).

Amended claim 6 recites the step of performing an ion implantation process on the active region to compensate for the ions, which are diffused from the active region.

Wu and Sung do not teach or suggest the step of performing an ion implantation process on the active region to compensate for the ions for controlling a threshold voltage, which are diffused from the active region, as mentioned above.

Accordingly, Applicant believes that the amended claim 6 is different from the Wu and Sung and claim 14 depending from claim 6 is also in condition for allowance.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) and Sung (5,550,078) as applied to claim 6 above, taken with Oda et al (2002/0086498).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) and Sung (5,550,078) as applied to claim 6 above, taken with Hong (6,030,882).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) and Sung (5,550,078) as applied to claim 6 above, taken with Oda et al (2002/0086498).

Claims 7, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) and Sung (5,550,078) as applied to claim 6 above, and further of Houlihan (2001/0021545) or Dong (2003/0119256).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) and Sung (5,550,078) as applied to claim 6 above, and further of Kim (2003/0067050) and/or Dong (2003/0119256).

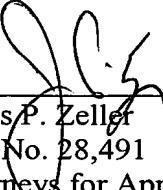
Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) and Sung (5,550,078) as applied to claim 6 above, and further of Sung et al (6,180,453) and/or Dong (2003/0119256).

Claims 7-13 depend from claim 6. Therefore, the Applicant believes that Claims 7-13 are in condition for allowance since base claim 6 is condition for allowance.

Should the examiner wish to discuss the foregoing or any matter of form in an effort to advance this application toward allowance, he is urged to telephone the undersigned at the indicated number.

Respectfully submitted,

MARSHALL, GERSTEIN & BORUN LLP

By: 

James P. Zeller
Reg. No. 28,491
Attorneys for Applicant

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6300 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606-6357
(312) 474-6300